

### ■ Features

- High surge current capability
- No reverse recovery
- Positive Temperature Coefficient
- Easy to paralleling
- Halogen-free / RoHS compliant
- Compliance with EU REACH

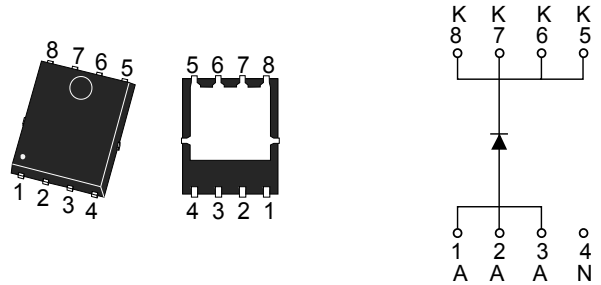
### ■ Benefits

- High-speed switching
- Low heat dissipation requirements
- Reduce size and cost of the system
- High-reliability
- System efficiency improvement

### ■ Applications

- Solar inverter
- Power factor correction
- Data Center
- Switch mode power supply

|           |                                 |
|-----------|---------------------------------|
| $V_{RRM}$ | 650V                            |
| $I_F$     | 8A( $T_c=156^{\circ}\text{C}$ ) |
| $Q_C$     | 21nC                            |



Package:PDFN5060-8L

ECR865AN-HF

HF=Halogen Free

### Absolute Maximum Ratings ( $T_c=25^{\circ}\text{C}$ )

| Symbol          | Parameter                                     |  | Data           | Unit                 |
|-----------------|---|--|----------------|----------------------|
| $V_{RRM}$       | Repetitive Peak Reverse Voltage               |  | 650            | V                    |
| $I_F$           | Continuous Forward Current                    | $T_c=25^{\circ}\text{C}$   | 31             | A                    |
|                 |   | $T_c=135^{\circ}\text{C}$  | 14             | A                    |
|                 |   | $T_c=156^{\circ}\text{C}$  | 8              | A                    |
| $I_{FSM}$       | Non-Repetitive Forward Surge Current          | $T_c=25^{\circ}\text{C}, T_p=8.3\text{mS}, \text{Half Sine Pulse}$ | 72             | A                    |
| $P_{tot}$       | Power Dissipation                             | $T_c=25^{\circ}\text{C}$   | 107            | W                    |
| $T_J$           | Operating Junction Temperature                |  | $-55 \sim 175$ | $^{\circ}\text{C}$   |
| $T_{STG}$       | Storage Temperature                           |  | $-55 \sim 175$ | $^{\circ}\text{C}$   |
| $R_{\theta JC}$ | Thermal Resistance Junction to Case (per leg) |  | TYP:1.4        | $^{\circ}\text{C/W}$ |

### Electricity Character Per Diode ( $T_c=25^{\circ}\text{C}$ )

| Item  | Test Condition  |                           | Value(min) | Value(typ) | Value(max) | Unit          |
|-------|---|---------------------------|------------|------------|------------|---------------|
| $V_B$ | —   | $T_c=25^{\circ}\text{C}$  | 650        | —          | —          | V             |
| $V_F$ | $I_F=8\text{A}$   | $T_c=25^{\circ}\text{C}$  | —          | 1.27       | 1.5        | V             |
|       |   | $T_c=175^{\circ}\text{C}$ | —          | 1.38       | —          | V             |
| $I_R$ | $V_R=650\text{V}$   | $T_c=25^{\circ}\text{C}$  | —          | 5          | 50         | $\mu\text{A}$ |
|       |   | $T_c=175^{\circ}\text{C}$ | —          | 25         | —          | $\mu\text{A}$ |
| C     | $f=1\text{MHz}$   | $V_R=1\text{V}$           | —          | 430        | —          | pF            |
|       |   | $V_R=200\text{V}$         | —          | 54         | —          | pF            |
|       |   | $V_R=400\text{V}$         | —          | 39         | —          | pF            |
| $Q_C$ | $V_R=400\text{V}, I_F=8\text{A}, di/dt=200\text{A}/\mu\text{S}$ |                           | —          | 21         | —          | nC            |



## Electrical Characteristic Curves

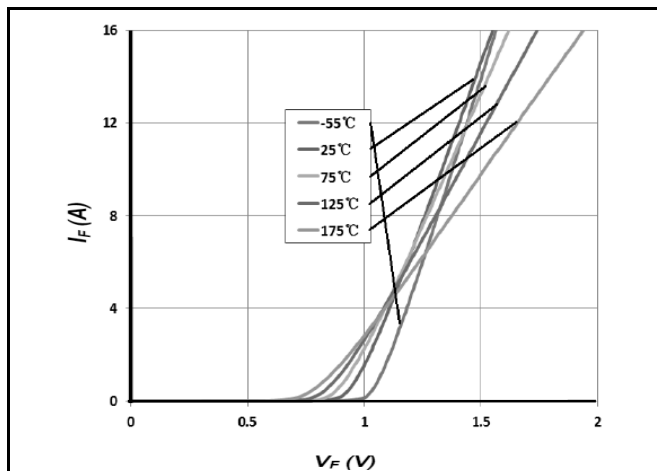


Figure 1 Forward Characteristics

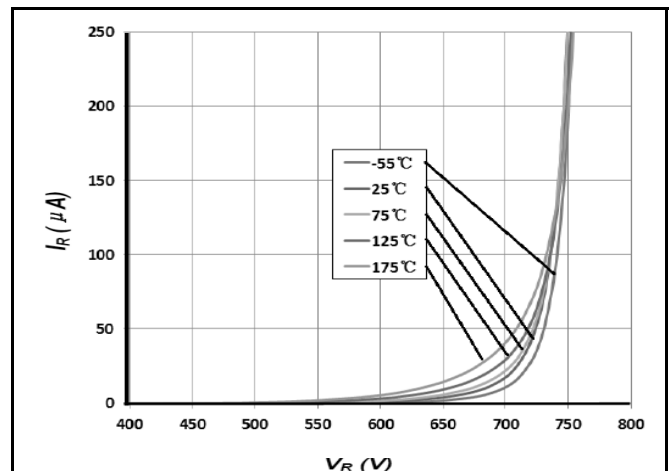


Figure 2 Reverse Characteristics

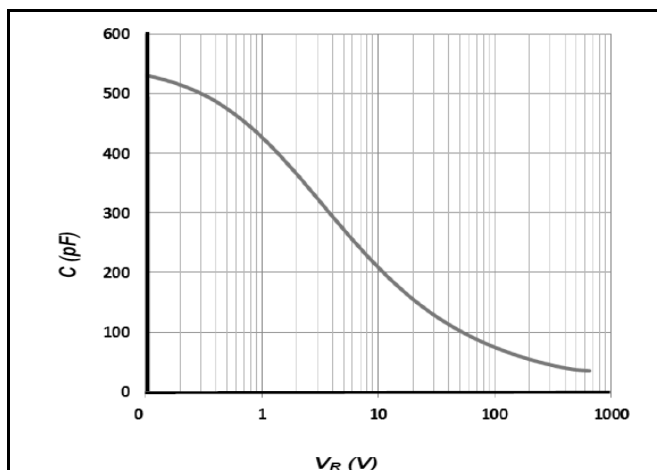


Figure 3 Capacitance vs. Reverse Voltage

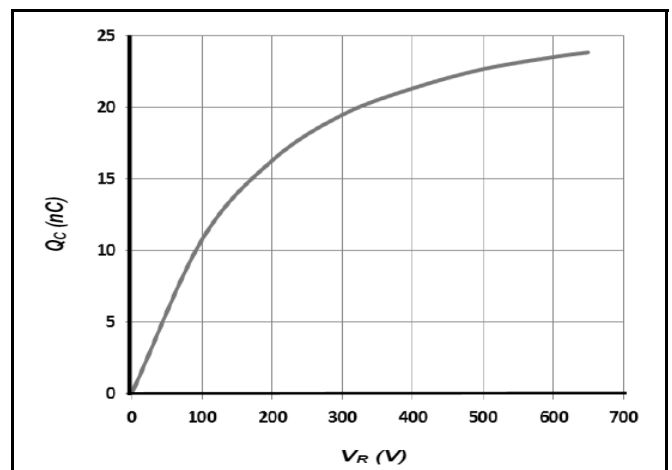
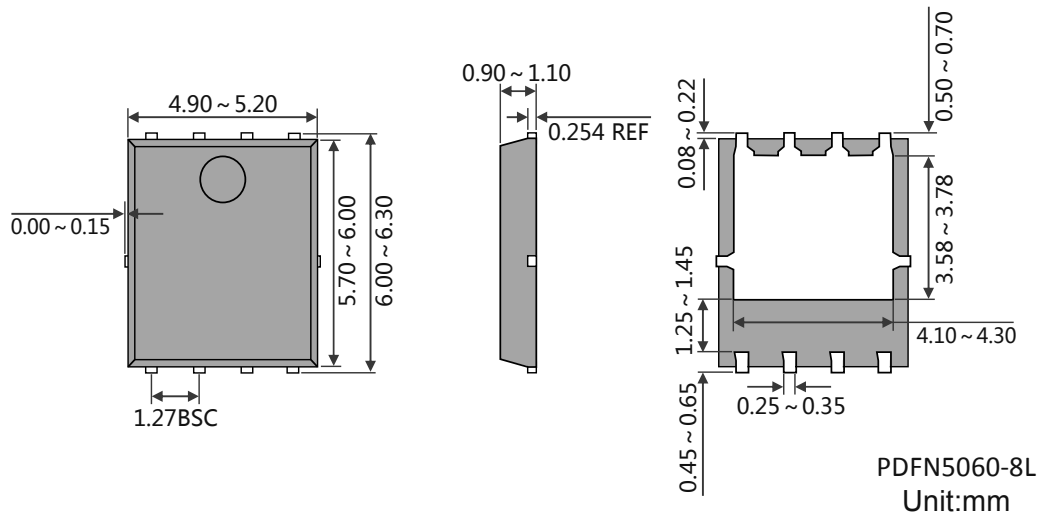


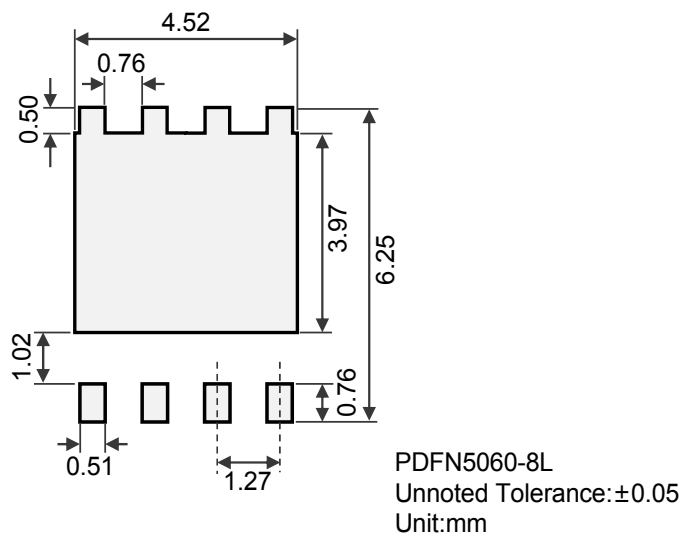
Figure 4 Capacitance Charge vs. Reverse Voltage



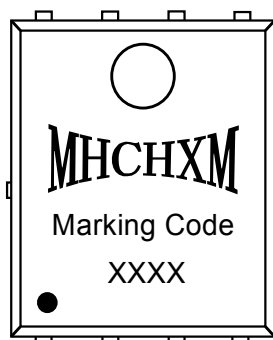
### Package Outline Dimensions



### Suggested Solder Pad Layout



### Marking Information

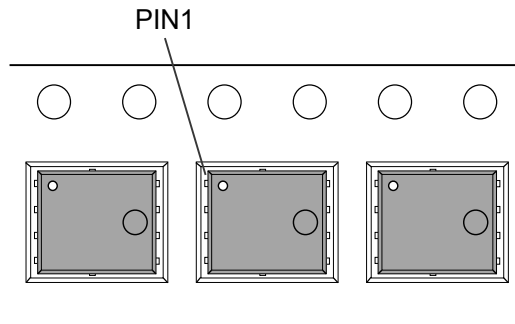


“MHCHXM”= Product Logo  
 “Marking Code”= The Following  
 “XXXX”= Date Code Marking

| Marking Code | Part Number |
|--------------|-------------|
| ECR865AN     | ECR865AN-HF |



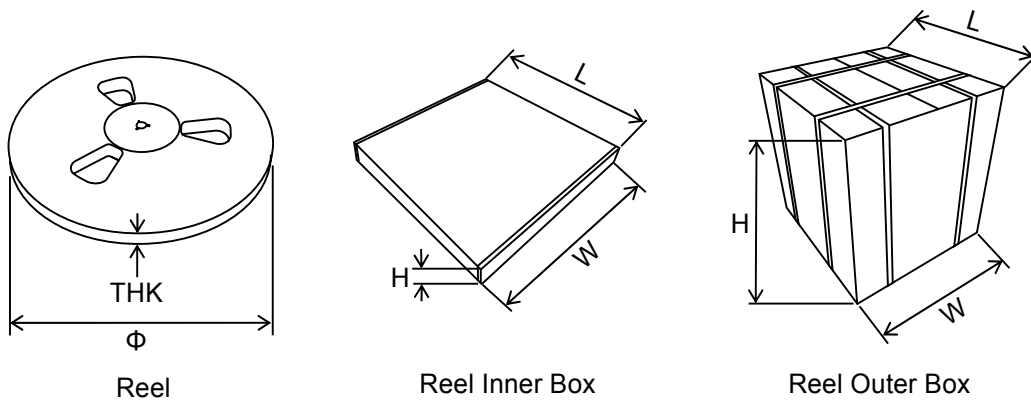
#### The Orientation Of The Product In The Carrier Tape



#### Packing Information

| Packaging | Part Number | Quantity(pcs) | Size(mm)       |
|-----------|-------------|---------------|----------------|
| Reel      | Reel        | 5000          | Φ330×THK15     |
|           | Inner Box   | 10000         | L355×W335×H48  |
|           | Outer Box   | 80000         | L415×W375×H360 |

#### Packaging:Reel



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